REMARKS/ARGUMENTS

Reconsideration of this patent application is respectfully requested in view of the foregoing amendments, and the following remarks. Claims 1-3 are in the application.

The Examiner rejected claims 1-3 under 35 U.S.C. §103 as being unpatentable over Marshall et al. in view of Nishida et al. Applicants respectfully traverse.

Marshall et al (GB 975 322) explains (page 1, lines 20 to 29) that it is advantageous not to use pre-alloyed powders. In lines 40 to 42, it states that nickel can be used as a pre-alloyed powder with one or two of the other (alloy) metals indicated, and this also corresponds to claim 3 of Marshall as cited by the Examiner. Since boron is not included in the group of metals in the periodic system, a pre-alloyed powder that contains nickel and boron is not disclosed by Marshall et al. This circumstance is also evident from the explanations by Marshall et al. with regard to the boron content, when it is explained on page 1, lines 55 and 56, that boron can be added not only in amorphous form, but also as ferroboron or as metallic

borate. This shows that Marshall et al. in fact precludes a pre-alloyed powder of nickel, boron, and iron as alloy elements.

Nishida et al. studies the influence of a pre-alloyed powder of iron, nickel, and boron on the tensile strength of sintered steels. In connection with Fig. 6, it is explained that a liquid phase of at least 9% is required in order to achieve a sintered body that is dense, to a great extent, and this requires a minimum content of pre-alloyed Fe-Ni-B powder of 3 wt.-%. This means that at the amount ratios indicated, the boron content of the total mixture must be at least 0.3 wt.-%. This boron content is above the upper limit of 0.2 wt.-% claimed in claim 1 of the present application.

If one of skill in the art were seeking to increase strength and impact resistance, they might look to the teaching of Nishida et al., but then the values of Marshall et al. would have to be abandoned, because Nishida et al. shows that the tensile strength can be significantly increased only by means of a pre-alloyed powder of Fe-Ni-B, and then only if the boron content is selected to be greater than 0.3 wt.-%. A person skilled in the art is given no suggestions in Marshall et al. to lower the boron

content in Nishida et al., which is in contradiction to the teaching of Nishida et al. This is because Nishida et al relates the special effect of the pre-alloyed Fe-Ni-B powder in a minimum proportion in this powder, which presupposes a corresponding minimum content of boron. The greater boron content is what specifically opposes an improvement in the impact resistance of the sintered steel. Marshall et al. describes a boron content between 0.01 to 0.4 wt.-%, but a person skilled in the art is by no means moved to lower the boron content in Nishida et al to the range claimed in the present invention, because Nishida et al unmistakably shows that the liquid phase during sintering required for the desired tensile strength cannot be achieved with such a low boron content. Therefore, Nishida teaches away from the invention claimed in claims 1-3 of the present invention.

In summary, Marshall et al. and Nishida et al. cannot be combined, to provide a pre-alloyed Fe-Ni-B powder according to Nishida, but with clearly lower boron proportions as disclosed in some of the range Marshall et al. This is because Nishida et al. shows that the higher boron content is what is important, so that a person skilled in the art can only conclude from Marshall et al. and Nishida et al. that if the boron content is reduced in a

range as that covered by Marshall et al, the metallic properties of the sintered steel will significantly decrease, particularly with regard to the tensile strength. A person skilled in the art therefore has no reason to lower the boron content in accordance with the invention, because on the basis of the teachings of Marshall et al and Nishida et al, he/she can only presume that the metallic properties of the sintered metal can only worsen with a reduction in the boron content when using a pre-alloyed powder of iron, nickel, and boron. Therefore, it must be considered surprising and inventive that not only can the tensile strength be increased by reducing the boron content, despite the use of a pre-alloyed powder of iron, nickel, and boron, but also the impact resistance of the sintered steel can be significantly improved. This is not taught or suggested by either Nishida or Marshall.

Accordingly, Applicants submit that claims 1-3 are patentable over the cited references, taken either singly or in combination. Early allowance of the claims is respectfully requested.

Respectfully submitted,
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